

CLAIMS:

1. A method of changing the relative position and/or orientation of two components of a virtual model displayed on a screen, the method comprising:

5 selecting components whose relative position and orientation is to be changed;

defining a change to be made; and

calculating and providing on the screen an indication of a remaining degrees of freedom of the components after the change has been made.

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2. The method according to claim 1, further comprising the step of determining whether the change to be made is possible based on an existing degrees of freedom of the components and, if not, indicating this to a user.

3. The method according to claim 1, further comprising the step of calculating a transformation matrix for carrying out the change and performing the change, and further comprising the step of conveying information on a changed position and orientation of the components to a user on-screen, and modifying the virtual model to incorporate the change.

4. The method according to claim 1, further comprising the steps of calculating degrees of freedom of the components prior to the change being made; ⁹ determining whether the change causes a reduction in the degrees of freedom and, if so, effecting the reduction in ⁵ degree of freedom and providing an indication of the reduction to a user. ¹⁰

5. The method of claim 3, wherein the indication of the remaining degrees of freedom of the components, and an indication of the change to the position and orientation of the components is conveyed to the user by only conveying information that has changed

since the change to the relative position and orientation.

6. The method of claim 1, wherein the virtual model is displayed on a plurality of screens of a plurality of users, such plurality of screens being connected to a common collaboration server, data defining said virtual model at any time being stored in said collaboration server and conveyed to all users.

7. A method according to claim 6, wherein, after said step of selecting, a lock signal is transmitted to all the users other than a user who has made the selection, and wherein said lock signal is an indication that the selected components are not available to be moved by any of said other users.

8. A method according to claim 7, wherein said lock signal is removed after the change has been made.

9. A system for changing a relative position and/or orientation of two components of a virtual model displayed on a screen, said system comprising:

a storing apparatus that includes data defining a virtual model displayed on at least one screen;

an input device that enables an user to input commands to effect a selection of components of the model displayed on said screen whose relative position and orientation is to be changed;

a processing apparatus that changes the relative position and orientation of the selected components in accordance with said input commands and that provides on said screen a modified virtual model incorporating the change in relative position and orientation of the selected components and that provides an indication on said screen of a remaining degrees of freedom of said selected components after the change has been made.

10. The system according to claim 9 wherein a plurality of screens of a plurality of users are connected to a common collaboration server in which the virtual model and the processing apparatus are contained.

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